

In re Patent Application of  
Giampa

Serial No. 10/068,285

#### REMARKS

Applicant gratefully acknowledges the allowance of claims 18 – 27. Applicant also gratefully acknowledges the removal of the previously cited Burch reference. With respect to claims 3 – 16, Applicant respectfully submits that the claims as amended include subject matter that is patentably distinct from the emulsion composition in Wilson.

#### Wilson

Wilson and the present application describe entirely different emulsion formulations that are used for entirely different purposes. Wilson describes an emulsion that is used for dust control suppression on highways. As indicated previously, the present application describes an emulsion that is specifically used for the purpose of producing chemical change in coal to produce a synfuel.

The Wilson emulsion includes a mixture of *crude tall oil* and vegetable oil emulsified in water and a base that is used to saponify the mixture of crude tall oil and vegetable oil. As now required in claims 3 and 10, the present invention preferably uses tall oil pitch, not *crude tall oil*. Crude tall oil and tall oil pitch are not the same compounds. Crude tall oil would not be considered to be an equivalent of tall oil pitch. They have different CAS numbers. The CAS number for Tall Oil Pitch is CAS# 8016-81-7 and the CAS number for Crude Tall Oil is CAS# 8002-26-4, as illustrated in the attached printouts from the Environmental Protection Agency's Acute Toxicity Report that is available on its website. When crude tall oil is distilled, the products primarily consist of tall oil pitch and distilled tall oil. Tall oil pitch is the fractionation residue from crude tall oil distillation.

Column 4, lines 14 – 26 of Wilson describe the preferred composition for the crude tall oil for use in the Wilson emulsion. The crude tall oil is described as having a fatty acid composition of about 30 – 35%, a resin and resin acid composition of about 35 – 60%, and an unsaponifiables composition of about 5 – 10%. The composition of the tall oil pitch, which is required in Claims 3 and 10, falls outside the limits provided for in Wilson. Namely, the tall oil pitch that is used in the present invention has a much higher resin composition and much lower fatty acid and unsaponifiables composition.

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Paragraph 12 on page 4 of the present specification discusses reacting crude tall oil with a suitable base to obtain a preferred surfactant, i.e. anionic soap, which is added to the tall oil. Unmodified crude tall oil, however, is not present in Claims 3 or 10. The addition of crude tall oil reduces the percent of chemical change achieved when compared with tall oil pitch, which teaches away from the present invention.

### SUMMARY

Because the components of the two emulsions are different and the emulsions are used for very different purposes, Applicant respectfully submits that the present invention is patentably distinct from the emulsion in Wilson.

In commenting upon the references and in order to facilitate a better understanding of the differences that are expressed in the claims, certain details of distinction between the references and the present invention have been mentioned, even though such differences do not appear in all of the claims. It is not intended by mentioning any such unclaimed distinctions to create any implied limitations in the claims. Not all of the distinctions between the prior art and Applicant's present invention have been made by Applicant. For the foregoing reasons, Applicant reserves the right to submit additional evidence showing the distinctions between Applicant's invention to be novel and nonobvious in view of the prior art.

The foregoing remarks are intended to assist the Examiner in re-examining the application and in the course of explanation may employ shortened or more specific or variant descriptions of some of the claim language. Such descriptions are not intended to limit the scope of the claims; the actual claim language should be considered in each case. Furthermore, the remarks are not to be considered to be exhaustive of the facets of the invention that render it patentable, being only examples of certain advantageous features and differences which Applicant's attorney chooses to mention at this time.

Reconsideration of the application, in view of the comments provided herein, and allowance of all of the claims are respectfully requested.

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In view of the foregoing Response, Applicant respectfully submits that all of the claims are allowable, and Applicant respectfully requests the issuance of a Notice of Allowance.

The Commissioner is hereby authorized to charge all fees and any additional fees that may be required or credit any overpayment to Bracewell & Patterson, L.L.P. Deposit Account No. 50-0259 (Order No. 25581.002). Should further discussion regarding the application be desired by the Examiner, a telephone conference is respectfully requested. Constance Rhebergen can be reached at (713) 221-3306 and Kimberly Brown can be reached at (713) 221-1189.

Date: 8-25-04

Respectfully submitted,



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**ATTORNEYS FOR ASSIGNEE**

| PHYSICO-CHEMICAL PROPERTY – OCTANOL/WATER PARTITION COEFFICIENT |   |
|---|---|
| <b><u>Test Substance</u></b>                                    |   |
| Chemical Name   | Tall oil pitch  |
| CAS #   | 8016-81-7   |
| Remarks   | This substance is referred to as tall oil pitch in the test plan for tall oil and related substances.   |
| <b><u>Method</u></b>  |   |
| Method/Guideline followed                                       | Testing was conducted according to OECD Test Method 117, "Partition Coefficient (n-Octanol/Water) High Performance Liquid Chromatograph (HPLC) Method"  |
| Test Type   | Partition coefficient   |
| GLP (Y/N)   | Y   |
| Year (Study Performed)  | 1993  |
| Test conditions   | Tall oil pitch was dissolved in methanol and the solution was analyzed by HPLC with UV detection using a mobile phase of methanol:buffer (3:1) at pH 2 and pH 7.5. As a reference substance, a mixture of seven materials was used. |
| <b><u>Results</u></b>   | At pH 2, the log $P_{ow}$ [ $K_{ow}$ ] values of three components in tall oil pitch were 4.3, 6.0, and 6.9. At pH 7.5, the log $P_{ow}$ values of three components in tall oil pitch were 2.8, 3.6, and 4.4.                        |
| <b><u>Data Quality</u></b>                                      | Reliable without restrictions – Klimisch Code 1a<br>Note: the various $K_{ow}$ values reflect the components in the mixture and not the mixture <i>per se</i> .   |
| <b><u>References</u></b>  | Dybdahl, H.P. 1993. Determination of log $P_{ow}$ for single components in tall oil pitch. GLP Study No. 408335/473. Water Quality Institute, Horsholm, Denmark.  |

| <b>ACUTE TOXICITY – ORAL</b>   |  |
|--------------------------------|--|
| <b><u>Test substance</u></b>   |  |
| Chemical Name                  | Tall oil   |
| CAS #                          | 8002-26-4  |
| Remarks                        | This substance is referred to as tall oil in the test plan for tall oil and related substances.  |
| <b><u>Method</u></b>           |  |
| Method/Guideline followed      | Test procedure was similar to OECD Test Method 401, "Acute Oral Toxicity"  |
| GLP (Y/N)                      | N  |
| Year (Study Performed)         | 1986   |
| Species                        | Rat  |
| Strain                         | Sprague-Dawley   |
| Route of administration        | Oral   |
| Dose levels                    | 5000 mg/kg   |
| Sex and number/group           | 5 male and 5 female rats   |
| Frequency of treatment         | Single oral gavage   |
| Duration of test               | 14 day observation post-treatment  |
| Control group (Y/N)            | N  |
| <b><u>Result</u></b>           |  |
| Acute Oral LD <sub>50</sub>    | >5000 mg/kg  |
| <b><u>Detailed Summary</u></b> | Crude tall oil (CAS #8002-26-4) was administered orally (via gavage) to Sprague-Dawley rats (n = 5/sex/study) at 5000 mg/kg and the animals were observed for 14 days. The study was performed two times. Parameters evaluated included mortality, clinical signs, body weight gain, and gross pathology. In the first test, one male died on day 1 and a second male died on day 7. For the females, one death occurred on day 1 and a second on day 3. The overall mortality was 40%. No body weight effects were noted. Animals surviving the treatment appeared normal and exhibited no effects at gross pathological examination. In comparison, rats dying on study exhibited erosion of the stomach epithelium and hyperemia of the intestinal tract. When the study was repeated using the same dose level, no deaths occurred, the rats appeared normal throughout, no body weight effects occurred, and there were no gross pathological findings. Based on these data, the oral LD <sub>50</sub> was greater than 5000 mg/kg. |
| <b><u>Data Quality</u></b>     | Valid without restriction – Klimisch Code 1b   |
| <b><u>Reference</u></b>        | Prince, H.N. 1986. Acute toxicity report: oral toxicity. Report No. GBL 30373. Gibraltar Biological Laboratories, Inc., Fairfield, New Jersey.   |